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Ohio State Engineer

Title: Front Matter

Issue Date: 1944-03

Publisher: Ohio State University, College of Engineering

Citation: Ohio State Engineer, vol. 27, no. 4 (March, 1944), 1-6.

URI: <http://hdl.handle.net/1811/36048>

OHIO STATE ENGINEER



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1944

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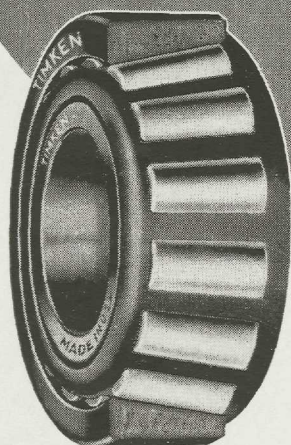
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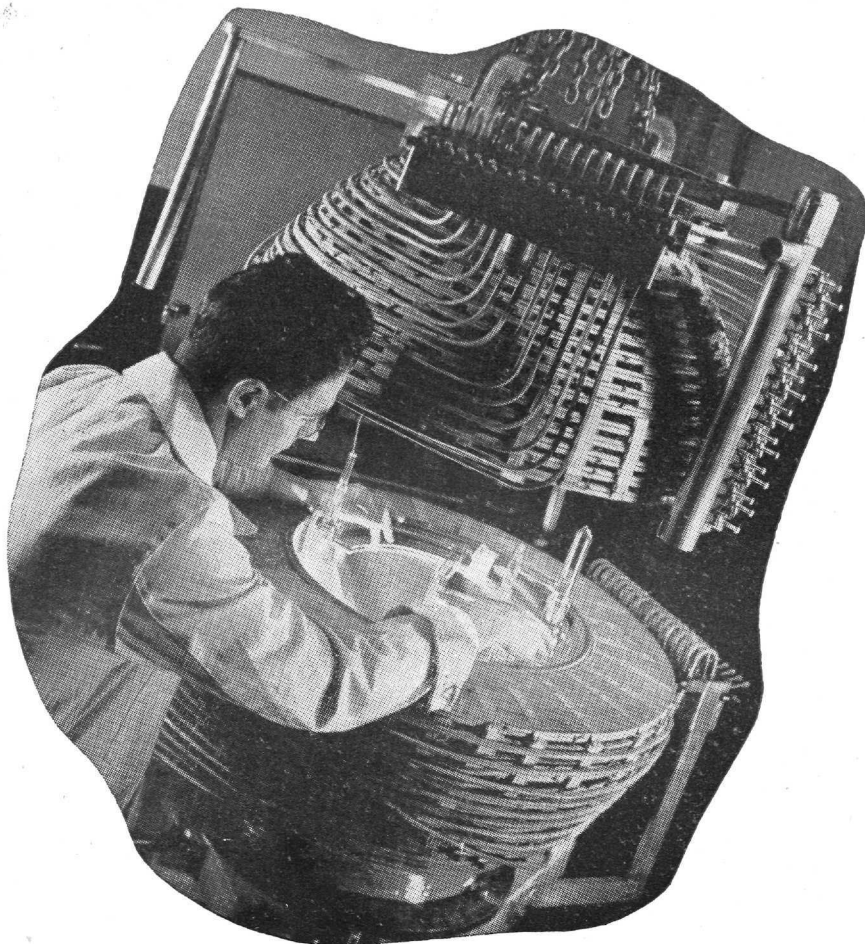
B'R'R'R'R'... A polar bear would be right at home at 20° below zero in the Westinghouse "igloo" at East Pittsburgh. This cold chamber is 1500 times as large as the average electric home refrigerator. Here, Westinghouse engineers test ice-coated circuit breakers and other electrical switching equipment, to guarantee operation under worst winter conditions.

HIGH LIFE IS HARD on carbon generator brushes in high-flying bombers. They used to wear down to the pigtails in an hour or two, at 30,000 feet. Now Westinghouse engineers have developed a chemical treatment that keeps the brush face lubricated at stratosphere heights. Result: *fifty-fold* increase in brush life... enough for a dozen raids over Berlin.

EVER SEE A MILLIONTH of an inch? Probably you never will—but the Electrigage can *feel* as little as twelve millionths. Developed by Westinghouse and Sheffield Corporation, it can measure with a precision equal to finding an error of three-quarters of an inch in a mile. Infinitesimal movement of gauging stylus induces a tiny current, which is amplified 10,000 times.

AIR IS HEAVY STUFF when you start pushing it around at 400 miles an hour. That's why U. S. Army needed a 40,000 horsepower electric motor to create a man-made hurricane, for testing airplanes in Wright Field wind tunnel. It is the world's largest wound-rotor induction motor, designed and built by Westinghouse engineers.

The above items are condensed excerpts from articles in the WESTINGHOUSE ENGINEER, a bi-monthly engineering review. Regular subscription price—\$2.00 a year. *Special price to students—50¢.*



Chemical analyses — *right now!*

Above is the laboratory model of the Westinghouse mass spectrometer, which sorts out dissimilar molecules according to their mass, and does it almost as fast as you can snap your fingers.

The mass spectrometer provides a new way to get the quick, accurate analyses that are needed to maintain precise process control. Take the synthetic rubber industry, for example. Formerly, five men took as long as three days to complete necessary chemical tests in the processing of artificial rubber—which meant that the results were often too late to be useful.

The new electronic "chemist," the Westinghouse mass spectrometer, now makes these tests in about 15 minutes.

For leadership in the electrical solution of industry's problems, look to Westinghouse. *Westinghouse Electric & Manufacturing Company, Pittsburgh 30, Pennsylvania.*

Tune in John Charles Thomas, NBC, Sundays, 2:30 p.m., E.W.T.

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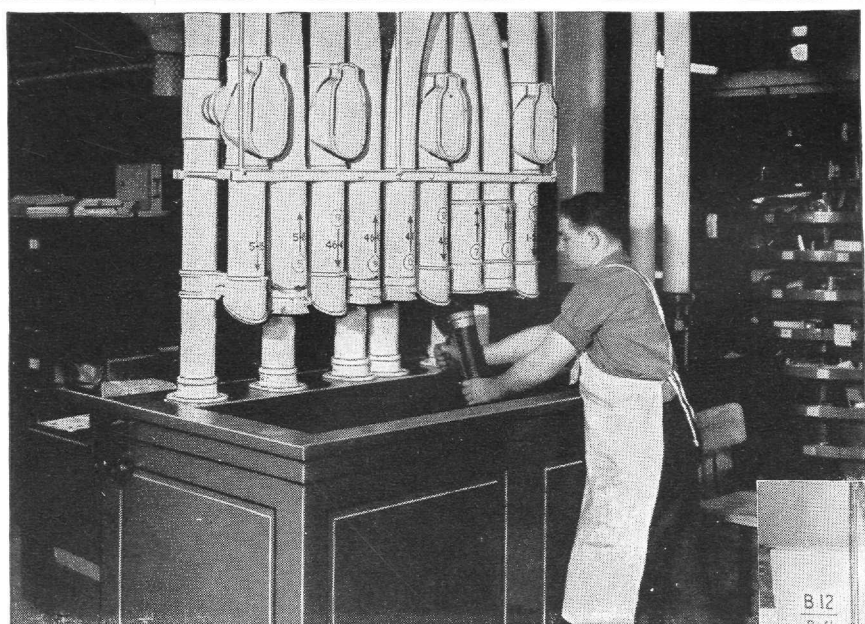
And so, the roads lead away to the uttermost ends of the earth . . . to the South Seas of Captain Cook and Admiral Halsey . . . to the Orient of the Great Khan and General Chiang Kai-shek . . . to the England of Wellington and Churchill. Along every mile of those roads you will find American boys reading American newspapers and magazines . . . "including all the ads, three times"; and American books . . . "right out of their covers."

It's a long road that has no turning, and turn these roads surely will . . . to bring our victorious warriors home to the most wonderful land they will see in all their travels. The doctrine of the divine right of kings is no longer accepted; and the age of unbridled autocracy—the day of irresponsible and ruthless force—is rightfully condemned. The new generation is coming up, inspired with a broader understanding of the world and of human justice—which will lead the people along the roads of intelligence and four-fold freedom for all.

In town and country you see these happy leaders of the new world—pedalling their bikes along the roads with laughter and eager chatter—exploring the endless wonders of the woods and the fields—winning hard-fought but fair and friendly contests on the sandlots. Brimming with healthy curiosity, they demand to know, these boys and girls: "What? Why? When? Where? Who? What does Kettering say? Compton? What is the air-distance?" Engineers, here's a coming new market that demands your best!

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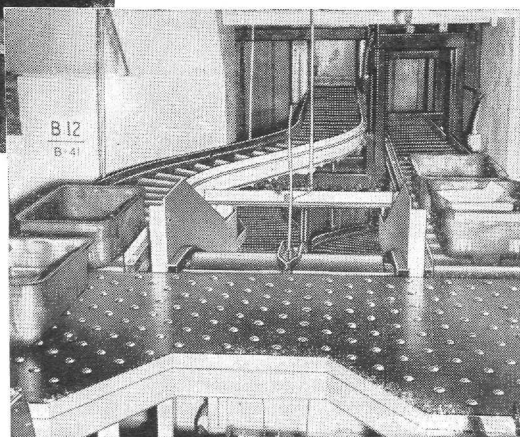
← No interruptions or delays in getting paper-work, tools and gauges wherever required throughout the plant.

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With Lamson Conveyors moving materials and work-in-process in a steady flow, and Lamson Dispatch Tubes speeding paper-work throughout the plant . . . men, materials and machines are integrated into an efficient, easily adjustable, easily directed production unit. Co-ordinated Control will be more necessary than ever in the postwar industrial picture, when the ability to meet competition will again determine the measure of success.

Lamson manufactures both conveyors and dispatch tubes — but more than that, Lamson is



an organization of materials-handling engineers, well qualified, by experience, to aid in blue printing postwar production. They have prepared a booklet containing many valuable suggestions. You are sure to profit by its timely information . . . Send for it by filling in the coupon below.



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R...for Rusty Roofs

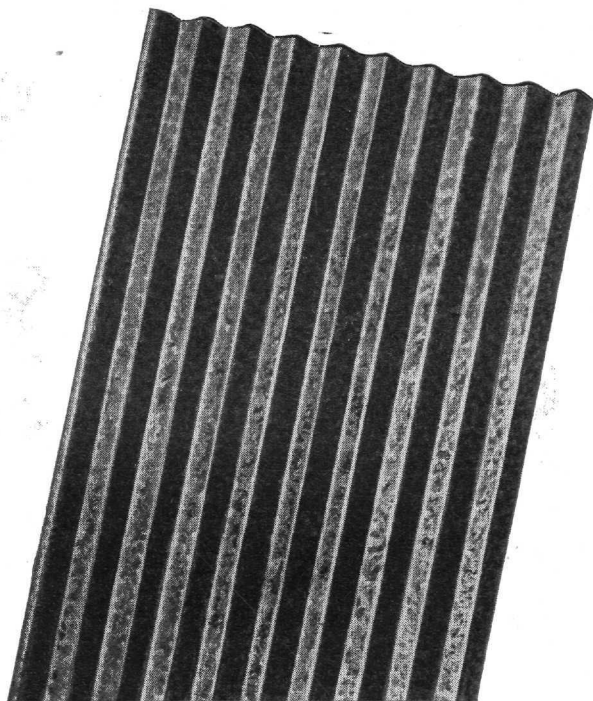
Here is a sure remedy to renew the utility and appearance of galvanized roofing sheets that show a tendency to rust:

Apply . . .

METALLIC ZINC PAINT

This truly remarkable paint has proved its worth in many a practical test. The rust-inhibitive and preventive power which Zinc possesses as a coating on galvanized sheets is carried into the paint itself through the metallic Zinc dust in the pigment. METALLIC ZINC PAINT applied to metal roofing sheets at the first sign of rust will completely stop it for many years—the durability of the paint is amazing.

For best results, follow the formula in Federal Spec. TT-P-641 as prepared by the U. S. Bureau of Standards.



BUILDINGS

**Are Important In
Food Production**

Our country will be called upon in 1944 for the greatest food production in history. Industry as well as agriculture has its duty to perform in the great "Food Fights For Freedom" program. Many buildings, both on farms and in industrial areas, are used for food storage and processing, and the maintenance of these buildings so as to provide safe and adequate storage and shelter is highly important.



**Buildings Are War Equipment
Keep Them Fit and Fighting**

How to Make GALVANIZED ROOFING Last Longer

As part of its contribution to the campaign for conservation of materials and to the "Food Fights For Freedom" Program, the Zinc Institute has prepared two booklets of special value to anyone who desires to maintain the utility and appearance of galvanized roofing practically indefinitely:

1-"METALLIC ZINC PAINT"

**2-"HOW TO MAKE GALVANIZED ROOFING
LAST LONGER"**

These booklets are being distributed free, and a postal request will bring copies to you.

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The Ohio State Engineer

The OHIO STATE ENGINEER

Vol. XXVII

March, 1944

No. 4

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Our Cover

The mass spectrograph, containing 7000 feet of copper tubing, segregates gas molecules and their constituent atoms according to their masses.

—Courtesy Westinghouse.

Our Frontispiece

One of the new destroyers equipped with latest type propulsion apparatus.

—Courtesy General Electric.

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Published in the months of November, December, February, March, April, May and June by the students in the College of Engineering, The Ohio State University, Columbus, Ohio. Subscription price, 97 cents (tax 3 cents) per year for seven copies. Single copies, 15 cents each. Make checks and money orders payable to THE OHIO STATE ENGINEER.

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March, 1944

Entered as second-class matter May 15, 1912, at the post office at Columbus, Ohio, under the Act of March 3, 1879. Acceptance for mailing at special rate postage provided for in Section 1103, Act of October 3, 1917. Authorized December 8, 1922

